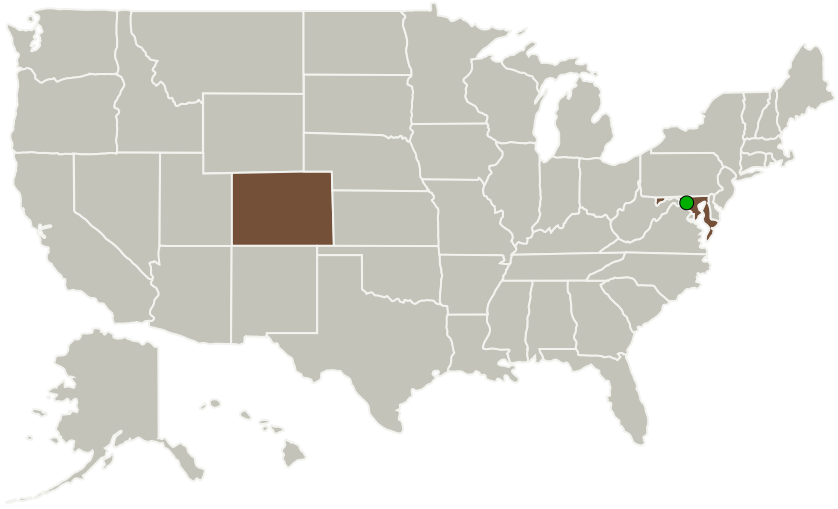
EO Scanned Micro-LADAR, Phase II

Completed Technology Project (2014 - 2016)

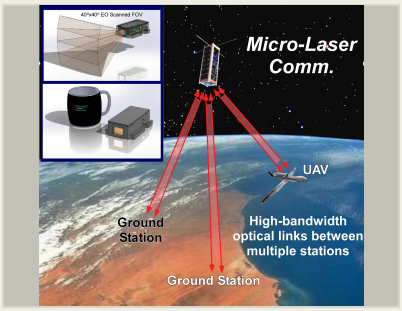
Project Introduction

In this phase II SBIR we will design, build, test, and deliver new scanning based micro-ladar sensors with unprecedented small size, weight, and power (SWaP), thereby enabling scanning LADAR deployment on previously inaccessible platforms such as satellites. The system will range out to > 1 km, have high frame rates, high resolution (up to 500 x 500), high range accuracy (<5 cm), weigh less than a kg, be constructed from space deployable technologies with no-moving parts. The enabling technology for this Micro-LADAR system is a combination of two new electro-optic laser scanning technologies: high speed refractive continuous scanners with a 60o—15o field of view (FOV) and diffractive-waveplate discrete or step-wise scanners to boost the total FOV (ultimately up to unthinkable angles such as 120o—120o). The results will be a very low-power, long-life (no moving parts), radiation hard, micro-LADAR.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Vescent Photonics, Inc.	Lead Organization	Industry	Arvada, Colorado
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



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Primary U.S. Work Locations	
Colorado	Maryland

Project Transitions

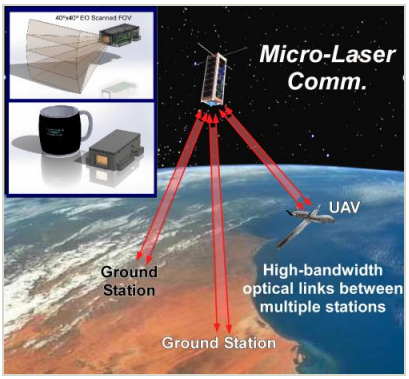
April 2014: Project Start

October 2016: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137743)*

Images



Briefing Chart Image
EO Scanned Micro-LADAR, Phase II
(https://techport.nasa.gov/image/137230)

Final Summary Chart Image
EO Scanned Micro-LADAR, Phase II Project Image
(https://techport.nasa.gov/image/133691)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Vescent Photonics, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Scott R Davis

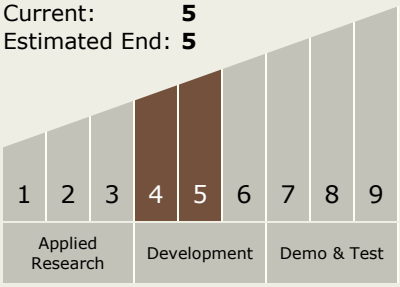
Co-Investigator:
Scott Davis

EO Scanned Micro-LADAR, Phase II

Completed Technology Project (2014 - 2016)

Technology Maturity (TRL)

Start: **4**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.5 Radiation
    - TX06.5.3 Protection Systems

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System